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Subject:

Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies Monthly Progress Report
Area 1 – Morrow Dam to Plainwell Dam (November 2009)

SEDIMENTS

Dear Jim:

Date:
December 15, 2009

Attached is the 33rd monthly progress report for the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Supplemental Remedial Investigation/Feasibility Study (SRI/FS) – Area 1. This progress report is submitted as per Paragraph 37 of the February 2007 Administrative Settlement Agreement and Order on Consent (AOC) for Remedial Investigations/Feasibility Studies (Docket No. V-W-07-C-864), as well as Section 7.1 of the associated Statement of Work (SOW). If you have any questions, please do not hesitate to contact me.

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Sincerely,

ARCADIS

Michael J. Erickson, P.E.
Vice President

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**MONTHLY PROGRESS REPORT FOR THE ALLIED PAPER, INC./PORTAGE CREEK/
KALAMAZOO RIVER SUPERFUND SITE SRI/FS
AREA 1 (MORROW DAM TO PLAINWELL DAM)**

REPORT #33, NOVEMBER 2009

**PREPARED BY ARCADIS
DECEMBER 15, 2009**

ON BEHALF OF THE KALAMAZOO RIVER STUDY GROUP

SUBMITTED TO

**JAMES SARIC, REMEDIAL PROJECT MANAGER
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Monthly Progress Report for the Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site SRI/FS – Area 1**

REPORT #33, NOVEMBER 2009

**Significant Developments and Activities during the Period, Including Actions Undertaken
Pursuant to the AOC and SOW**

- On November 9 and 11, ARCADIS forwarded to the United States Environmental Protection Agency (USEPA) revised supplemental sediment sampling work plans for the Crown Vantage area. This sampling is discussed in Section 3.4.3 of the Area 1 SRI/FS Work Plan.
- On November 18, USEPA forwarded to ARCADIS comments on the *Multi-Area Feasibility Study Technical Memorandum - Preliminary Remedial Technology Screening* [Section 1.2.2.1 of the SOW].
- On November 20, ARCADIS submitted to USEPA the revised *Area 1 Work Plan Supplement: Baseline Ecological Risk Assessment Work Plan*. This document was revised in scope, approach, and content in response to verbal comments received from technical representatives of the USEPA, MDEQ, and Natural Resource Trustees on the draft work plan submitted to USEPA on June 30, 2009, and collaborative agreement reached on several key issues.
- On November 24, ARCADIS forwarded to USEPA parcel information related to the off-channel sediment sampling and a schedule for Crown Vantage area sediment sampling.
- On November 30, USEPA forwarded to ARCADIS the approval for the supplemental sediment sampling work plan for the Crown Vantage area.
- The Kalamazoo River Study Group (KRSG) awaits USEPA concurrence with ARCADIS' August 17, 2009 letter regarding specific phased sampling tasks; and USEPA's comments on the *Area 1 Work Plan Supplement: Baseline Ecological Risk Assessment Work Plan*.

Data Collected and Field Activities Conducted during the Period

- On November 2, ARCADIS released additional sediment samples to TestAmerica Laboratories, Inc. (TestAmerica) for PCB analysis. The samples were from sediment core SPI-40, collected from Lake Allegan in May (Table A).
- From November 3 through 17, ARCADIS collected sediment samples for the hot spot assessment (Table B). The samples were processed and sent to TestAmerica for PCB analysis (Table C).
- On November 10, ARCADIS probed transects at the point bar upstream of transect KRT-8 as part of the hot spot assessment (Table D).
- From November 12 through 17, ARCADIS probed locations in the off-channel areas (Table E).

**Monthly Progress Report for the Allied Paper, Inc./Portage Creek/
Kalamazoo River Superfund Site SRI/FS – Area 1**

REPORT #33, NOVEMBER 2009

Laboratory Data Received during the Period

- On November 9, ARCADIS received from TestAmerica the PCB results for the remainder of the focused step-out sediment cores from the FF-35 area (sample delivery group [SDG] KAL479) (Table F).
- On November 12 and 13, Mass Spec Services forwarded to ARCADIS the radionuclide analytical results for selected sediment samples collected from Lake Allegan (SDG Pb0188 and Pb0189). These frozen Lake Allegan sediment samples were collected in May and submitted for analysis in September. The samples are the remaining deep samples from core SPI-40 (Table G).
- On November 25, CDM forwarded to ARCADIS the results of the split samples collected by CDM during the groundwater/surface water sampling conducted in the Plainwell Time Critical Removal Action (TCRA) area in September.
- On November 30, ARCADIS received from TestAmerica a portion of the PCB results for the surface sediment samples collected in Lake Allegan in October (SDG KAL483) (Table H).
- ARCADIS awaits from TestAmerica the remainder of the PCB results for the surface sediment samples collected in Lake Allegan in October (Table H), and the PCB results for the sediment samples collected in October as part of the hot spot assessment (Table I).
- Validated data for the laboratory SDGs received in September are included in this monthly report. These data include the results for SDG KAL474 for the PCB analyses performed by TestAmerica on sediment samples collected from Lake Allegan (Table J). In accordance with Section 2.1 of the SOW, paper and electronic copies of these laboratory data are included as part of the monthly progress reports. Attachment A contains the validation reports for these data packages. The enclosed compact disk also contains the electronic data deliverable for these data.

Problems

- The investigation activities in the off-channel areas were temporarily halted due to safety concerns related to the field crew being on the river during deer hunting season.

Actions Taken to Correct Problems

- The off-channel area sediment investigation work is scheduled to continue in December, pending coordination with property owners to avoid field activities during periods of active hunting on their properties.

**Monthly Progress Report for the Allied Paper, Inc./Portage Creek/
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REPORT #33, NOVEMBER 2009

Developments Anticipated during the Next Two Reporting Periods

- Validated data for the SDGs received in October will be included in the December monthly report. These data include the results for a portion of the PCB results for the four outer focused step-out sediment cores from the FF-35 area (SDG KAL480), the PCB results from the 15 groundwater and two surface water samples collected in the Plainwell TCRA area in September (SDG KAL481), and the PCB results for the sediment samples collected from Lake Allegan in May and analyzed by TestAmerica in August (SDGs KAL475, KAL477, and KAL476).
- On December 1, USEPA is scheduled to host a general site update public meeting in Plainwell.
- During the week of December 1, ARCADIS is scheduled to collect the supplemental sediment samples at Crown Vantage.
- From December 1 through 11, ARCADIS is scheduled to monitor the groundwater and surface water elevations twice a week to confirm groundwater flow towards the river in the Plainwell TCRA Area in preparation for the quarterly sampling. This sampling is discussed in Section 3.4.6 of the Area 1 SRI/FS Work Plan.
- During the weeks of December 7 and 14, ARCADIS is scheduled to collect bathymetric survey data from the former Plainwell Impoundment, and to resume sediment sampling activities in the off-channel areas.
- During the week of December 14, ARCADIS is scheduled to sample 15 wells and collect two surface water samples from the river in the Plainwell TCRA Area.
- By December 14, ARCADIS is scheduled to submit a revised *Multi-Area FS Tech Memo – Evaluation of Candidate Technologies and Testing Needs* to USEPA for review.
- By January 4, 2010, ARCADIS is scheduled to submit a revised *Multi-Area Feasibility Study Technical Memorandum - Preliminary Remedial Technology Screening* to USEPA for review.
- In January 2010, ARCADIS is scheduled to fillet the fish samples collected in October 2009 and forward the fillet samples to TestAmerica for PCB analysis. Currently, the fish samples are being held in frozen storage at the ARCADIS field office in Kalamazoo, Michigan.

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #33, November 2009

Table A — Lake Allegan (Area 6) — Samples Submitted for PCB Analyses from Lake Allegan in November 2009

Date Collected	Location	Depth Interval (cm)	Sample ID
5/13/2009	SPI-40	0-1	K16818
		1-2	K16819
		2-3	K16820
		3-4	K16821
		4-5	K16822
		5-6	K16823
		6-7	K16824
		7-8	K16825
		8-9	K16826
		9-10	K16827
		10-12	K16828
		12-14	K16829
		14-16	K16830
		16-18	K16831
		18-20	K16832
		20-25	K16833
		25-30	K16834
		30-35	K16835
		35-40	K16836
		40-45	K16837
		45-50	K16838
		50-55	K16839
		55-60	K16840
		60-65	K16841
		65-70	K16842

Notes:

Samples were submitted to TestAmerica Laboratories, Inc. for PCB and percent solids analysis.

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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/3/2009	KRT4-B ¹	6.4	4.5	4.2		0 - 8.4	Gray Brown Fine to Medium Sand (Through Lexan)
						8.4 - 27.6	Dark Gray Brown Fine to Medium Sand, Trace Silt (Through Lexan)
						27.6 - 30	Dark Gray Brown Silt (Through Lexan)
						30 - 37.2	Dark Gray Brown Fine to Medium Sand (Through Lexan)
						37.2 - 50.4	Dark Gray Brown, Fine to Medium Sand, Little Silt (Through Lexan)
	KRT4-H ¹	6.8	2.3	1.6		0 - 0.6	Dark Brown Loose Silt (Through Lexan)
						0.6 - 7.2	Gray Brown Fine Sand (Through Lexan)
						7.2 - 19.2	Dark Gray Brown Fine Sand, Little Silt (Through Lexan)
	KRT5-A	4.0	6.5	5.9		0 - 12	Dark Gray Brown Fine Sand, Trace Medium to Coarse, Trace Organics (Vegetation)
						12 - 70.8	Dark Gray Clayey Silt at 4 ft and 4.7, Light Gray Brown Interbedded Moderately Soft, Stiffer with Depth, Trace Highly Degraded Organics, Has Odor
	KRT5-B ¹	12.0	3.2	2.7		0 - 4.8	Brown Fine to Medium Sand (Through Lexan)
						4.8 - 15.6	Gray Brown Fine to Medium Sand, Trace Coarse Sand (Through Lexan)
						15.6 - 24	Dark Gray Brown Fine Sand, Trace Silt (Through Lexan)
						24 - 32.4	Gray Interbedded Fine Sand Silts (Through Lexan)
	KRT5-C	7.3	1.5	1.15	Location moved 6' south at the request of D. Santini (CDM) Original location was within close proximity to multiple concrete pylons in the water.	0 - 6	Brown Fine to Coarse Gravel, Little Fine to Medium Sand, Trace Coarse Sand
						6 - 12	Gray Brown Fine to Medium Sand, Trace Coarse Sand, Trace Shells
						12 - 14	Light Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Fine to Coarse Gravel, Trace Shells
	KRT5-D	7.7	0.75	0.75		0 - 4.8	Orange Brown Fine to Coarse Sand, Trace Fine to Coarse Gravel, Trace Glass, Trace Organics (Shells)
						4.8 - 9	Dark Gray Fine to Medium Sand, Little Coarse Sand, Trace Fine to Medium Gravel, Trace Silt, Odor

See Notes on Page 11.

**Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/3/2009 (Cont.)	KRT5-E	3.3	2.1	1.5		0 - 6	Dark Brown Fine Sand, Trace Silt, Trace Organics (Leaves and Twigs) Trace Plastic
						6 - 8	Dark Brown Fine to Medium Sand, Little Coarse Sand, Little Fine to Medium Gravel, Trace Organics (Leaves and Twigs)
						8 - 11	Dark Gray Silt, Trace Fine Sand, Trace Organics (Leaves)
						11 - 16	Dark Brown Silt, Trace Fine Sand, Trace Highly Degraded Organics
						16 - 18	Dark Gray Silt, Trace Fine to Coarse Sand, Trace Fine Gravel, Trace Organics
	KRT5-F	9.8	4.0	3.6		0 - 13.2	Brown Fine Sand, Trace Medium Sand, Trace organics (Roots and Shells)
						13.2 - 20.4	Dark Brown Moderate to Highly Degraded Organics, Little Fine Sand, Trace Silt
						20.4 - 28.8	Gray Brown Fine Sand with Dark Brown Organics, Interbedded Trace Silt
						28.8 - 32.4	Bluish Gray Silty Clay, Slight Odor
						32.4 - 34.8	Dark Gray Fine Sand, Trace Silt, Trace Organics
						34.8 - 42	Dark Gray Clayey Silt, Trace Fine Sand, Trace Organics (Vegetation and Twigs), Has Odor
						42 - 43.2	Dark Gray Fine Sand, Trace Medium Sand, Trace Silt
	KRT5-G ¹	3.0	1.3	1.3		0 - 4.8	Gray Brown Fine Sand (Through Lexan)
						4.8 - 9.6	Dark Gray Fine Sand, Little Silt (Through Lexan)
						9.6 - 15.6	Dark Gray Fine Sand, Silt (Through Lexan)
	KRT5-H ¹	11.8	1.3	1.1		0 - 3.6	Brown Fine Sand, Trace Silt, Trace Organics (Through Lexan)
						3.6 - 13.2	Dark Gray Fine Sand, Litter, Trace Organics (Through Lexan)

See Notes on Page 11.

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #33, November 2009

Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/4/2009	KPT23-6	8.0	3.0	2.7		0 - 9	Light Brown Fine to Coarse Sand, Trace Organics (Twigs and Shells)
						9 - 15	Light Brown Fine to Medium Sand, Little Coarse Sand, Trace Organics (Shells)
						15 - 27	Dark Gray Brown Fine to Medium Sand, Trace Coarse Sand, Trace Shells, Interbedded Dark Brown Organic Seams
						27 - 33	Gray Brown Fine to Medium Sand, Trace Coarse Sand, Trace Organics (Shells), Trace Fine Gravel
	KPT23-A ¹	8.9	3.0	2.9		0 - 34.8	Gray Brown Fine Sand, Trace Organics, Grading to Gray Brown Fine to Medium Sand, Trace Coarse Sand, Trace Organics
	KPT23-B ¹	5.4	2.0	2.0		0 - 1.2	Dark Gray Brown Loose Silt (Through Lexan)
						1.2 - 12	Dark Gray Brown Fine to Medium Sand, Trace Coarse Sands, Trace Shells (Through Lexan)
						12 - 24	Fine Sand and Silt Mixture (Through Lexan)
	KPT23-C	8.6	3.1	2.9		0 - 12	Brown Fine to Medium Sand, Little Coarse Sand, Trace Organics (Shells/Twigs)
						12 - 17	Dark Gray Brown Fine Sand, Trace Medium Sand
						17 - 21	Dark Gray Fine Sand, Little Moderate to Highly Degraded Organics, Trace Medium Sand
						21 - 24	Gray Fine Sand, Trace Medium Sand, Trace Organics
						24 - 25	Gray Brown Fine to Medium Sand, Trace Coarse Sand
						25 - 38	Gray Grading to Brown Fine to Medium Sand, Trace Coarse Sand, Organics (Leaves), Trace Fine Gravel, Trace Shells

See Notes on Page 11.

Kalamazoo River Study Group
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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/4/2009 (Cont.)	KPT23-D	4.9	2.1	1.8		0 - 9	Dark Gray Brown Fine Sand, Trace Medium to Coarse, Trace Organics (Leaves/Twigs) Trace Fine to Medium Gravel
						9 - 14	Dark Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Fine to Medium Gravel, Trace Organics
						14 - 16	Wood
						16 - 22	Dark Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Medium Gravel, Trace Organics (Shells/Wood)
	KPT23-E	8.4	3.5	3.2		0 - 5	Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Organics (Shells and Roots)
						5 - 7	Dark Gray Fine Sand, Little Organics, Trace Medium to Coarse Sand
						7 - 15	Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Organics (Twigs/Shells), Trace Plastic
						15 - 28	Dark Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Organics (Wood and Shells)
						28 - 33	Dark Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Organics (Wood and Shells), Trace Fine Gravel
						33 - 39	Dark Gray Brown Fine Sand, Trace Medium to Coarse, Trace Organics (Shells)
	KPT23-F	6.5	1.0	0.5		0 - 6	Dark Gray Brown Fine Sand, Trace Silt, Trace Medium Sand, Trace Organics (Wood/Shells), Trace Fine Gravel, Slight Odor
	KPT23-G ¹	8.8	2.4	2.4		0 - 8.4	Gray Brown Fine to Coarse Sand, Trace Shells (Through Lexan)
						8.4 - 22.8	Dark Gray Brown Fine to Medium Sand, Trace Coarse
						22.8 - 28.8	Gray Brown Fine to Coarse Sand, Trace Coarse Sand (Through Lexan)

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Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/4/2009 (Cont.)	KPT23-H ¹	6.3	1.8	1.6	Originally recorded wrong cap clarified by	0 - 4.8	Dark Gray Fine Sand, Trace Organics (Through Lexan)
						4.8 - 15.6	Dark Gray Fine Sand, Silt (Through Lexan)
						15.6 - 19.2	Gray Fine Sand (Through Lexan)
	KRT5-2	3.6	1.6	1.6		0 - 7	Dark Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Fine Gravel, Trace Organics (Shells and Leaves)
						7 - 19	Dark Gray Brown Silt, Little Fine Sand, Trace Clay
	KRT5-5	11.5	2.8	2.4		0 - 6	Orange Brown Fine to Medium Sand, Trace Coarse Sand, Trace Organics (Wood/Shells)
						6 - 10	Orange Brown Fine to Coarse Sand, Little Fine to Medium Gravel
						10 - 12	Dark Gray Fine to Medium Sand, Little Coarse Sand, Trace Fine to Medium Gravel
						12 - 15	Brown Silty Clay, Trace Organics (Vegetation), Trace Fine Sand, Has Odors
						15 - 16	Gray Fine Sand, Trace Silt, Has Odor
						16 - 17	Gray Fine Sand, Trace Silt, Has Odor
						17 - 20	Dark Gray Fine Sand, Trace Silt, Has Odor
						20 - 20.5	Gray Fine Sand, Trace Silt, Has Odor
						20.5 - 25	Dark Gray Fine to Medium Sand, Trace Coarse Sand, Trace Silt, Slight Odor
						25 - 29	Dark Gray Fine to Coarse Sand, Little Fine to Medium Gravel
11/5/2009	KPT19-3	5.7	3.6	3.6		0 - 6	Gray Brown Fine Sand, Little Organics (Vegetation, Wood, Sticks)
						6 - 12	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Gravel, Trace Organics (Vegetation)
						12 - 37	Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Intermittent Dark Gray Silt, Trace Shells
						37 - 43	Dark Gray Fine Sand, Trace Medium Sand, Trace Organics (Shells, Vegetation, Wood), Slight Odor

See Notes on Page 11.

**Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #33, November 2009**

Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/5/2009 (Cont.)	KPT19-A ¹	7.2	2.8	2.8		0 - 4.8	Orange Brown Fine to Medium Sand (Through Lexan)
						4.8 - 18	Gray Brown Grading to Dark Gray Brown Fine to Medium Sand (Through Lexan)
						18 - 22.8	Dark Gray Brown Silt (Through Lexan)
						22.8 - 33.6	Dark Gray Brown Fine Sand (Through Lexan)
	KPT19-B ¹	5.4	2.6	2.55		0 - 8.4	Dark Gray Brown Fine Sand, Little Silt (Through Lexan)
						8.4 - 20.4	Dark Gray Brown Silt (Through Lexan)
						20.4 - 24	Dark Gray Brown Fine Sand (Through Lexan)
						24 - 30.6	Dark Gray Brown Silt (Through Lexan)
	KPT19-C	7.8	3.2	3.0		0 - 5	Organic Brown Fine Sand, Little Fine Gravel, Trace Shells
						5 - 36	Gray Fine Sand, Intermittent Fine to Medium Sand Seams, Trace Fine Gravel
	KPT19-D	7.7	3.0	2.8		0 - 10	Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Organics (Shells/Leaves), Trace Intermittent Dark Brown Fine Sand/Little Black Silt
						10 - 24	Interbedded Dark Gray and Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Organics (Wood/Twigs/Shells)
						24 - 34	Dark Gray Silty Clay, Trace Organics (Vegetation), Has Odor
	KPT19-E	2.8	1.5	1.3		0 - 1	Orange Brown Fine to Medium Sand, Trace Coarse Sand, Trace Fine Gravel, Trace Organics (Wood)
						1 - 3	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Medium Gravel, Trace Silt, Trace Organics (Roots)
						3 - 15	Gray Fine to Coarse Sand, Little Fine to Medium Gravel, Trace Shells

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Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/5/2009 (Cont.)	KPT19-F	8.1	3.0	3.0		0 - 4	Orange Brown Coarse Sand, Little Fine Gravel, Trace Fine to Medium Sand, Trace Organics (Shells)
						4 - 13	Gray Brown Fine to Coarse Sand, Little Fine to Medium Gravel, Trace Organics (Shells and Twigs)
						13 - 24	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Shells
						24 - 29	Dark Gray Coarse Sand, Little Fine to Medium Sand, Trace Fine Gravel, Trace Shells
						29 - 34	Gray Fine to Medium , Trace Coarse Sand, Trace Shells
						34 - 36	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Organics (Twigs/Shells)
	KPT19-G	7.2	2.4	2.4		0 - 20	Orange Brown Grading to Gray Brown Fine to Medium Sand, Trace Coarse Sand, Trace Organics (Shells/Leaves), Dark Gray Seam at 16-17"
						20 - 30	Dark Gray Silty Clay, Trace Organics (Vegetation), Has Odor
	KPT19-H	6.5	3.3	3.3		0 - 6	Gray Brown Fine Sand, Little Silt, Trace Organics (Vegetation/Leaves)
						6 - 30	Interbedded Dark Gray and Gray Brown Fine Sand, Little Organics 6-15", Fine to Medium Sand Seams at 21-23", Trace Organics
						30 - 40	Dark Gray Silty Clay, Trace Organics, Has Odor
	KPT19-I ¹	7.3	2.5	2.5		0 - 14.4	Orange Brown Grading to Dark Gray Brown Fine to Medium Sands (Through Lexan)
						14.4 - 30	Dark Gray Brown Silty Sands (Through Lexan)
	KPT19-J ¹	5.3	3.3	3.3		0 - 33.6	Gray Brown Fine Sand Grading to Fine to Medium Sands (Through Lexan)
						33.6 - 39.6	Dark Gray Brown Silt/Clay (Through Lexan)

See Notes on Page 11.

**Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #33, November 2009**

Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/10/2009	S-IM1-1 ¹	1.3	2.2	1.9		0 - 12	Gray Brown Fine Sand, Trace Organics (Vegetation and Wood) (Through Lexan)
						12 - 22.8	Dark Gray Fine Sand, Little Silt (Through Lexan)
	S-IM1-2 ¹	2.9	1.8	1.5		0 - 3.6	Dark Gray Fine Sand (Through Lexan)
						3.6 - 10.8	Dark Gray Silt/Clay (Through Lexan)
						10.8 - 18	Dark Gray Brown Sand, Trace Silt (Through Lexan)
	S-IM1-3	1.6	2.6	2.2		0 - 23	Dark Gray Brown Silty Clay, Trace Fine Sand, Trace Organics (Roots)
						23 - 27	Dark Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Shells and Twigs, Has Odor
	S-IM1-4	3.6	2.6	1.4		0 - 12	Dark Gray Clayey Silt, Trace Fine Sand, Trace Organics (Twigs and Shells), Has Odor
						12 - 17	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Medium to Fine Gravel, Trace Shells
	S-IM1-5	1.2	2.3	2.1		0 - 2	Brown Fine Sand, Trace Organics (Leaves and Twigs)
						2 - 5	Dark Gray Fine Sand, Little Silt, Little Highly Degraded Organics
						5 - 12	Gray Clayey Silt, Trace Organics, Trace Fine Sand
						12 - 15	Gray Brown Fine Sand and Silt, Trace Organics (Twigs)
						15 - 20	Dark Gray Brown Fine Sand, Trace Silt, Trace Organics (Twigs and Roots)
						20 - 25	Dark Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Medium Gravel, Trace Slag
	S-IM1-6	2.5	1.8	1.6		0 - 2	Brown Fine Sand, Trace Organics (Leaves), Trace Shell Fragments
						2 - 5	Dark Gray Brown Fine Sand, Trace Organics (Leaves and Twigs)
						5 - 15	Dark Gray Brown Fine Sand, Trace Organics (Leaves and Twigs) Trace Shells
						15 - 19	Gray Brown Fine Sand Little Silt, Little Organics (Twigs and Shells)

See Notes on Page 11.

Kalamazoo River Study Group
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Supplemental Remedial Investigations/Feasibility Studies
Monthly Report #33, November 2009

Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/10/2009 (Cont.)	S-IM1-7	0.4	3.0	2.6		0 - 10	Dark Gray Brown Fine Sand, Intermittent Organic Interbedded 6-7", Trace Shells
						10 - 15	Gray Silty Clay, Trace Fine Sand, Trace Organics (Roots)
						15 - 24	Gray Brown Fine to Coarse Sand, Little Fine Gravel, Trace Silt
						24 - 28	Gray Brown Fine to Medium Sand, Trace Coarse and, Trace Silt, Trace Shells
						28 - 30	Dark Gray Brown Silt, Trace Fine to Coarse Sand, Trace Fine Gravel
	S-IM1-8	3.1	5.3	4.2		0 - 2	Gray Brown Fine Sand
						2 - 25	Dark Gray Brown Fine Sand, Trace Silt, Little Organics Interbedded (Leaves, Twigs), Trace Plastic
						25 - 35	Dark Gray Brown Coarse Sand, Little Fine to Medium Sand, Trace Fine to Medium Gravel, Trace Organics (Shells)
						35 - 40	Dark Gray Fine to Medium Sand, Trace Coarse Sand
						40 - 44	Dark Gray Fine to Coarse Sand, Trace Fine to Medium Gravel, Trace Shells
						44 - 50	Dark Gray Fine to Medium Sand, Trace Coarse Sand, Trace Silt
	S-IM1-9 ¹	1.5	2.2	1.9		0 - 4.8	Dark Gray Brown Fine Sand, Trace Organics (Leaves) (Through Lexan)
						4.8 - 22.8	Gray Silt/Clay (Through Lexan)
	S-IM1-10 ¹	3.3	2.3	1.8		0 - 4.8	Gray Brown Fine to Medium Sand (Through Lexan)
						4.8 - 12	Dark Gray Silt/Clay (Through Lexan)
						12 - 21.6	Dark Gray Brown Fine to Medium Sand, Trace Coarse Sand (Through Lexan)

See Notes on Page 11.

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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/11/2009	KPT19-K	8.0	3.9	3.6		0 - 6	Brown Coarse Sand and Fine Gravel, Little Fine to Medium Sand, Trace Medium Gravel
						6 - 9	Brown Fine Sand, Trace Medium to Coarse Sand, Trace Medium Gravel, Trace Shells
						9 - 28	Gray Fine to Medium Sand, Trace Coarse Sand, Trace Fine Gravel, Trace Shells
						28 - 34	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Shells
						34 - 39	Dark Brown Fine to Medium Sand, Little Coarse Sand, Trace Shells, Trace Brick, Trace Organics (Twigs)
						39 - 42	Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Shells and Wood
11/12/2009	KPT20-B	3.1	2.0	1.9		0 - 4	Dark Gray Brown Primarily Slag, Little Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Medium Gravel, Trace Organics (Wood and Leaves), Trace Silt
						4 - 10	Dark Gray Brown Grading to Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Medium Gravel, Trace Slag
						10 - 18	Gray Brown Fine to Medium Sand, Trace Coarse Sand, Trace Shells, Trace Silt
						18 - 19	Dark Brown Medium Degraded Organics (Wood), Trace Fine Sand, Trace Fine Gravel
						19 - 24	Gray Fine to Medium Sand, Little Coarse Sand, Trace Fine to Coarse Gravel, Trace Shells
11/13/2009	KPT20-C	5.8	1.0	1.0		0 - 2	Orange Brown Coarse Sand, Little Fine to Medium Sand, Little Fine Gravel
						2 - 6	Gray Brown Fine to Medium Sand, Little Coarse Sand, Trace Fine Gravel
						6 - 9	Brown Coarse Sand and Fine Gravel, Trace Fine to Medium Sand, Trace Medium gravel
						9 - 12	Dark Gray Fine to Medium Sand, Little Coarse Sand, Little Fine to Medium Gravel, Trace Slag

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Table B — Hot Spot Assessment — Sediment Cores Collected in November 2009

Date Collected	Location	Water Depth (ft)	Penetration (ft)	Recovery (ft)	Notes	Depth Interval (in)	Description
11/14/2009	KPT20-D ¹	5.5	0.8	0.4		0 - 4	Brown Fine to Medium Sand, Little Coarse Sand, Trace Fine to Medium Gravel (Through Lexan)
11/15/2009	KPT20-E ¹	4.9	1.0	1.0		0 - 3	Brown Fine to Coarse Sand, Trace Organics (Wood)
						3 - 12	Gray Brown Grading to Gray Fine to Medium Sand, Trace Coarse Sand, Trace Silt
11/16/2009	KPT20-A	6.6	1.0	1.0		0 - 5	Gray Brown Fine to Coarse Sand, Trace Fine to Medium Gravel, Trace Shells
						5 - 7	Dark Gray Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Coarse Gravel, Trace Shells
						7 - 9	Gray Brown Silt, Sand Seams at Bottom
						9 - 12	Dark Gray Brown Silt
11/17/2009	KPT20-8	3.0	1.0	0.6		0 - 3	Dark Gray Brown Clayey Silt, Trace Fine to Medium Gravel, Trace Organics (Roots), Trace Fine Sand
						3 - 8	Dark Gray Brown Fine Sand, Trace Medium to Coarse Sand, Trace Fine to Medium Gravel, Trace Silt, Trace Sheen, Odor

Notes:

All cores collected using 3" Lexan.

¹Placed in frozen storage at the Kalamazoo field office.

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Table C — Hot Spot Assessment — Sediment Samples Submitted for Laboratory Analysis in November 2009

Location	Sample ID	Depth Interval (in)	Notes
KRT5-A	K56471	0 - 2	
KRT5-A	K56472	2 - 6	
KRT5-A	K56473	6 - 12	
KRT5-A	K56474	12 - 24	
KRT5-A	K56475	24 - 36	
KRT5-A	K56476 ¹	36 - 48	
KRT5-A	K56477 [K56479]	48 - 60	
KRT5-A	K56478	60 - 70	
KRT5-C	K56480	0 - 2	
KRT5-C	K56481	2 - 6	
KRT5-C	K56482	6 - 12	
KRT5-C	K56483	12 - 14	
KRT5-D	K56484	0 - 2	
KRT5-D	K56485	2 - 6	
KRT5-D	K56486	6 - 9	
KRT5-E	K56487	0 - 2	
KRT5-E	K56488	2 - 6	
KRT5-E	K56489	6 - 12	
KRT5-E	K56490	12 - 18	
KRT5-F	K56491	0 - 2	
KRT5-F	K56492	2 - 6	
KRT5-F	K56493	6 - 12	
KRT5-F	K56494	12 - 20	
KRT5-F	K56495	20 - 24	
KRT5-F	K56496	24 - 29	
KRT5-F	K56497	29 - 32	
KRT5-F	K56498	32 - 35	
KRT5-F	K56499	35 - 42	
KRT5-F	K56500	42 - 44	
KPT4-3	K56501	0 - 2	Limited quantity for grain size
KPT4-3	K56502	2 - 6	
KPT4-3	K56503	6 - 9	
KPT4-3	K56504	9 - 11	Limited quantity for grain size
KPT4-3	K56505	11 - 24	
KPT4-3	K56506	24 - 35	
KPT4-3	K56507	35 - 38	
KPT4-3	K56508	38 - 40	Limited quantity for grain size
KPT4-3	K56509	40 - 48	
KPT4-3	K56510	48 - 58	
KPT23-6	K56531	0 - 2	
KPT23-6	K56532	2 - 6	
KPT23-6	K56533	6 - 12	
KPT23-6	K56534	12 - 24	
KPT23-6	K56535	24 - 33	
KPT23-C	K56511	0 - 2	
KPT23-C	K56512	2 - 6	
KPT23-C	K56513	6 - 12	
KPT23-C	K56514 [K56517]	12 - 24	
KPT23-C	K56515 ¹	24 - 36	
KPT23-C	K56516	36 - 38	

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Table C — Hot Spot Assessment — Sediment Samples Submitted for Laboratory Analysis in November 2009

Location	Sample ID	Depth Interval (in)	Notes
KPT23-D	K56518	0 - 2	
KPT23-D	K56519	2 - 6	
KPT23-D	K56520	6 - 12	
KPT23-D	K56521	12 - 22	
KPT23-E	K56522	0 - 2	
KPT23-E	K56523	2 - 6	
KPT23-E	K56524	6 - 12	
KPT23-E	K56525 [K56528]	12 - 24	
KPT23-E	K56526 ¹	24 - 36	
KPT23-E	K56527	36 - 39	
KPT23-F	K56529	0 - 2	
KPT23-F	K56530	2 - 6	
KRT5-2	K56536	0 - 2	
KRT5-2	K56537	2 - 6	
KRT5-2	K56538	6 - 12	
KRT5-2	K56539	12 - 19	
KRT5-5	K56540	0 - 2	
KRT5-5	K56541	2 - 6	
KRT5-5	K56542	6 - 10	
KRT5-5	K56543	10 - 12	
KRT5-5	K56544	12 - 15	
KRT5-5	K56545	15 - 21	Revised interval based on request by D. Santini (CDM)
KRT5-5	K56546	21 - 24	
KRT5-5	K56547	24 - 30	
KPT19-3	K56548	0 - 2	Limited quantity for grain size
KPT19-3	K56549	2 - 6	
KPT19-3	K56550	6 - 12	
KPT19-3	K56551	12 - 24	
KPT19-3	K56552	24 - 36	
KPT19-3	K56553	36 - 43	
KPT19-C	K56567	0 - 2	
KPT19-C	K56568	2 - 6	
KPT19-C	K56569	6 - 12	
KPT19-C	K56570 [K56572]	12 - 24	
KPT19-C	K56571 ¹	24 - 36	
KPT19-D	K56554	0 - 2	
KPT19-D	K56555	2 - 6	
KPT19-D	K56556	6 - 12	
KPT19-D	K56557 ¹	12 - 24	
KPT19-D	K56558 [K56559]	24 - 34	
KPT19-E	K56579	0 - 2	
KPT19-E	K56580	2 - 6	
KPT19-E	K56581	6 - 12	
KPT19-E	K56582	12 - 15	
KPT19-F	K56583	0 - 2	
KPT19-F	K56584	2 - 6	
KPT19-F	K56585	6 - 12	
KPT19-F	K56586 [K56588]	12 - 24	
KPT19-F	K56587 ¹	24 - 36	

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Table C — Hot Spot Assessment — Sediment Samples Submitted for Laboratory Analysis in November 2009

Location	Sample ID	Depth Interval (in)	Notes
KPT19-G	K56573	0 - 2	
KPT19-G	K56574	2 - 6	
KPT19-G	K56575	6 - 12	
KPT19-G	K56576	12 - 20	
KPT19-G	K56577	20 - 24	
KPT19-G	K56578	24 - 30	
KPT19-H	K56560	0 - 2	
KPT19-H	K56561	2 - 6	
KPT19-H	K56562	6 - 12	
KPT19-H	K56563	12 - 24	
KPT19-H	K56564	24 - 30	
KPT19-H	K56565	30 - 36	
KPT19-H	K56566	36 - 40	
S-IM1-3	K56609	0 - 2	Limited quantity
S-IM1-3	K56610	2 - 6	
S-IM1-3	K56611	6 - 12	
S-IM1-3	K56612 [K56514]	12 - 24	
S-IM1-3	K56613	24 - 27	
S-IM1-4	K56615	0 - 2	Limited quantity for grain size
S-IM1-4	K56616	2 - 6	
S-IM1-4	K56617	6 - 12	
S-IM1-4	K56618	12 - 17	
S-IM1-5	K56619	0 - 2	
S-IM1-5	K56620	2 - 5	
S-IM1-5	K56621 ¹	5 - 12	
S-IM1-5	K56622	12 - 15	
S-IM1-5	K56623	15 - 20	
S-IM1-5	K56624	20 - 25	
S-IM1-6	K56604	0 - 2	
S-IM1-6	K56605	2 - 6	
S-IM1-6	K56606	6 - 12	
S-IM1-6	K56607	12 - 15	
S-IM1-6	K56608	15 - 19	
S-IM1-7	K56597	0 - 2	Limited quantity for grain size
S-IM1-7	K56598	2 - 6	
S-IM1-7	K56599	6 - 10	
S-IM1-7	K56600	10 - 15	
S-IM1-7	K56601	15 - 24	
S-IM1-7	K56602	24 - 28	
S-IM1-7	K56603	28 - 30	
S-IM1-8	K56589	0 - 2	
S-IM1-8	K56590	2 - 6	
S-IM1-8	K56591	6 - 12	
S-IM1-8	K56592 [K56596]	12 - 24	
S-IM1-8	K56593 ¹	24 - 36	
S-IM1-8	K56594	36 - 48	
S-IM1-8	K56595	48 - 50	

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**Table C — Hot Spot Assessment — Sediment Samples Submitted for Laboratory Analysis in
November 2009**

Location	Sample ID	Depth Interval (in)	Notes
KPT19-K	K56625	0 - 2	
KPT19-K	K56626	2 - 6	
KPT19-K	K56627	6 - 12	
KPT19-K	K56628 [K56631]	12 - 24	
KPT19-K	K56629 ¹	24 - 36	
KPT19-K	K56630	36 - 42	
KPT20-B	K56632	0 - 2	
KPT20-B	K56633	2 - 6	
KPT20-B	K56634	6 - 12	
KPT20-B	K56635	12 - 23	
KPT20-C	K56636	0 - 2	
KPT20-C	K56637	2 - 6	
KPT20-C	K56638	6 - 12	
KPT20-A	K56639	0 - 2	
KPT20-A	K56640	2 - 7	
KPT20-A	K56641	7 - 12	
KPT20-8	K56642	0 - 2	
KPT20-8	K56643	2 - 6	
KPT20-8	K56644	6 - 8	

Notes:

All samples sent to TestAmerica Laboratories for PCB, TOC, and grain size analysis.

¹MS/MSD performed on this sample.

Duplicate samples are in brackets.

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Table D — Sediment Probing Data from Transects at Point Bar Upstream of KRT-8 - November 10, 2009

Transect	River Width (ft)	Station	Water Depth (ft)	Sediment Depth (ft)	Description
T-IM1-1	143	0+00 EOW	0.1	2.5	Silt/Roots
		0+02	1.8	2.0	Silt/Sand
		0+07	2.1	2.5	Silt/Sand
		0+12	2.8	1.5	Silt/Sand
		0+17	1.9	2.5	Silt/Sand
		0+22	2.3	3.0	Sand Over Hard Bottom
		0+32	4.2	0.5	Sand Over Hard Bottom
		0+42	4.6	0.3	Sand/Gravel Over Hard Bottom
		0+52	4.8	0.5	Sand Over Hard Bottom
		0+62	5.0	0.5	Sand Over Hard Bottom
		0+72	5.0	0.5	Sand Over Hard Bottom
		0+82	5.1	0.5	Sand Over Hard Bottom
		0+92	4.9	0.5	Sand Over Hard Bottom
		1+02	4.9	0.4	Sand Over Hard Bottom
		1+12	4.5	0.4	Sand Over Hard Bottom
		1+22	4.0	0.5	Sand Over Hard Bottom
		1+32	3.5	1.0	Sand Over Hard Bottom
		1+43 EOW	2.0	0.5	Sand Over Hard Bottom
T-IM1-2	135	0+00 EOW	0.6	2.5	Silt/Roots
		0+05	1.2	3.0	Silt/Sand Over Hard Bottom
		0+10	2.5	2.0	Silt/Sand
		0+15	2.4	1.5	Silt/Sand
		0+20	2.7	1.5	Silt/Sand
		0+25	3.2	2.0	Silt/Sand
		0+30	3.8	1.0	Sand
		0+40	4.0	1.2	Sand
		0+50	4.3	0.5	Sand
		0+60	6.0	1.0	Sand
		0+70	8.3	1.0	Sand
		0+80	10.6	1.0	Sand
		0+90	10.2	0.4	Sand, Trace Gravel
		1+00	10.2	1.0	Sand, Trace Gravel
		1+10	9.5	0.5	Sand, Trace Gravel
		1+20	6.7	0.5	Sand, Trace Gravel
		1+25	3.5	1.0	Silt/Sand Over Hard Bottom
		1+30	2.0	0.5	Silt/Sand Over Hard Bottom
		1+35	1.2	1.5	Silt/Sand Over Hard Bottom
T-IM1-3	122	0+00 EOW	0.15	4.5	Silt/Roots Over Sand
		0+05	1.5	2.6	Silt/Sand Over Hard Bottom
		0+10	3.2	2.4	Silt/Sand Over Hard Bottom
		0+20	4.0	1.3	Sand Over Hard Bottom
		0+30	4.6	2.3	Sand Over Hard Bottom
		0+40	6.2	1.0	Sand Over Hard Bottom
		0+50	7.0	1.0	Sand Over Hard Bottom
		0+60	8.0	1.0	Sand Over Hard Bottom
		0+70	8.3	0.5	Sand Over Hard Bottom
		0+80	7.5	0.5	Sand Over Hard Bottom
		0+90	6.6	0.4	Sand Over Hard Bottom
		1+00	5.8	0.4	Sand Over Hard Bottom
		1+10	4.1	1.0	Sand Over Hard Bottom
		1+22 EOW	1.0	0.5	Sand Over Hard Bottom

Note:

EOW - Edge of water.

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Table E — Off-Channel Investigation — Sediment Probing Data from November 2009

Location	Date	Station	Distance from Right Side Looking Upstream (ft)	Water Depth (ft)	Sediment Depth (ft)	Sediment Description (Probe)
Area 10						
S-PC1A-1	11/12/2009	0+00	EOW	0.8	1.4	Silt Over Sand/Gravel
		0+10	10	1.6	1.4	Sand/Gravel
		0+20	20	1.2	1.2	Sand/Gravel
		0+30	30	0.7	1.4	Sand/Gravel
		0+40	40	1.4	0.8	Sand/Gravel
		0+50	50	1.8	0.2	Sand/Gravel
		0+60	60 EOW	1.0	0.7	Silt Over Sand/Gravel
		1+00	100 EOW	0.1	2.0	Silt Over Sand/Gravel
		1+05	105	0.4	2.6	Silt Over Sand/Gravel
		1+10	110	0.3	1.7	Silt Over Sand/Gravel
		1+13	113 EOW	0.2	1.9	Silt Over Sand/Gravel
S-PC1A-1.5	11/12/2009	0+00 EOW	0 EOW	0.0	0.1	Sand/Gravel
		0+10	10	1.3	1.0	Sand/Gravel
		0+20	20	1.2	0.5	Sand/Gravel
		0+30	30	1.0	1.1	Sand/Gravel
		0+40	40	1.0	1.0	Sand/Gravel
		0+50	50	1.2	0.4	Sand/Gravel
		0+60	60	0.9	1.1	Sand/Gravel
		0+69	69 EOW	0.5	0.7	Silt Over Sand/Gravel
		1+10	110 EOW	0.0	2.0	Silt Over Sand/Gravel
		1+15	115	0.2	1.7	Silt Over Sand/Gravel
		1+20	120	0.2	1.2	Silt Over Sand/Gravel
		1+26	126 EOW	0.3	0.9	Silt Over Sand/Gravel
S-PC1A-2	11/12/2009	0+00 EOW	0.0 EOW	0.3	0.7	Sand/Gravel
		0+10	10	1.2	0.5	Sand/Gravel
		0+20	20	1.6	0.2	Sand/Gravel
		0+30	30	1.3	0.5	Sand/Gravel
		0+40	40	0.9	0.2	Sand/Gravel
		0+51	51 EOW	0.2	0.6	Sand/Gravel

See Note on Page 12.

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Table E — Off-Channel Investigation — Sediment Probing Data from November 2009

Location	Date	Station	Distance from Right Side Looking Upstream (ft)	Water Depth (ft)	Sediment Depth (ft)	Sediment Description (Probe)
Area 10 (Cont.)						
S-PC1A-2.5	11/12/2009	0+00	0 EOW	0.7	0.5	Silt Over Sand/Gravel
		0+10	10	2.2	3.0	Fine Sand/Silt Over Sand/Gravel
		0+20	20	2.3	1.1	Sand/Gravel
		0+30	30	2.4	1.0	Sand/Gravel
		0+40	40	2.0	1.5	Fine Sand Over Sands/Gravel
		0+50	50	1.6	1.5	Silt Over Sand/Gravel
		0+57	57 EOW	0.0	3.5	Silt Over Sands
S-PC1A-3	11/12/2009	0+00	0 EOW	0.0	3.1	Silt Over Sands
		0+10	10	1.1	3.2	Sands
		0+20	20	1.0	1.2	Sands Over Sand/Gravel
		0+30	30	1.8	0.6	Sand/Gravel
		0+40	40	2.7	0.3	Sand/Gravel
		0+50	50	2.4	1.7	Sands Over Sand/Gravel
		0+60	60	1.7	2.0	Sands Over Sand/Gravel
		0+70	70	0.9	1.9	Sands Over Sand/Gravel
		0+78	78 EOW	1.2	1.8	Sands Over Sand/Gravel
S-PC1A-3.5	11/12/2009	0+00	0 EOW	0.0	1.7	Silt/Sand/Gravel
		0+10	10	0.4	0.6	Silt Over Sand/Gravel
		0+20	20 EOW	1.0	1.0	Silt Over Sand/Gravel
		0+32	32 EOW	0.5	0.2	Sand/Gravel
		0+40	40	1.6	2.4	Silt Over Sand/Gravel
		0+50	50	2.7	1.5	Sand/Gravel
		0+60	60	2.4	2.2	Sand/Gravel
		0+70	70	1.9	0.6	Sand/Gravel
		0+80	80	2.8	0.6	Sand/Gravel
		0+90	90	1.3	1.4	Sand/Gravel
		0+98	98 EOW	0.7	0.6	Silt Over Sand/Gravel

See Note on Page 12.

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Table E — Off-Channel Investigation — Sediment Probing Data from November 2009

Location	Date	Station	Distance from Right Side Looking Upstream (ft)	Water Depth (ft)	Sediment Depth (ft)	Sediment Description (Probe)
Area 10 (Cont.)						
S-PC1C-1	11/12/2009	0+00	0 EOW	0.0	2.6	Silt Over Sand
		0+10	10	0.7	2.0	Gravel Over Sand
		0+20	20	0.9	1.3	Sand/Gravel
		0+30	30	1.1	1.0	Sand/Gravel
		0+40	40	1.6	0.4	Sand/Gravel
		0+50	50	1.5	1.0	Sand/Gravel
		0+59	59 EOW	0.2	1.0	Silt Over Hard Bottom/Sand
S-PC1C-1.5	11/12/2009	0+00	0 EOW	0.0	2.0	Silt Over Sand Hard Bottom
		0+10	10	0.0	2.0	Silt Over Sand Hard Bottom
		0+20	20	0.0	2.2	Silt Over Sand Hard Bottom
		0+30	30	0.2	3.0	Silt/Sand/Gravel Over Hard Bottom
		0+40	40	0.9	1.6	Silt Over Sand/Gravel
		0+50	50	2.1	2.2	Silt Over Sand/Gravel
		0+60	60	1.6	1.5	Sand Over Hard Bottom
		0+70	70	2.2	0.1	Gravel
		0+80	80	3.0	0.4	Sand/Gravel
		0+90	90	3.2	0.4	Sand/Gravel
		1+00	100	2.4	1.8	Sand Over Sand/Gravel
		1+10	110	1.2	2.6	Sand Over Hard Bottom
		1+20	120	0.8	2.5	Sand Over Hard Bottom
		1+30	130	0.6	1.6	Silt Over Sands
		1+40	140	0.8	1.6	Silt Over Sands
		1+50	150	0.8	1.4	Silt Over Sands
		1+58	158 EOW	0.0	1.6	Silt Over Sands
S-PC1B-2	11/12/2009	0+00	0 EOW	0.6	0.1	Sand/Gravel
		0+10	10	1.4	0.9	Sand/Gravel
		0+20	20	1.7	0.9	Sand/Gravel
		0+30	30	1.2	1.7	Sand/Gravel
		0+40	40	1.0	2.3	Silt Over Sands
		0+46	46 EOW	0.6	1.7	Silt Over Sands

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Table E — Off-Channel Investigation — Sediment Probing Data from November 2009

Location	Date	Station	Distance from Right Side Looking Upstream (ft)	Water Depth (ft)	Sediment Depth (ft)	Sediment Description (Probe)
Area 10 (Cont.)						
S-PC1B-2.5	11/12/2009	0+00	0 EOW	0.6	1.0	Silt Over Sand
		0+10	10	1.8	0.4	Sand/Gravel
		0+20	20	2.1	0.2	Sand/Gravel
		0+30	30	2.2	0.8	Sand/Gravel
		0+40	40	1.8	0.1	Gravel
		0+47	47 EOW	0.6	0.8	Silt Over Sand/Gravel
S-PC1B-3	11/12/2009	0+00	0 EOW	0.0	2.0	Silt Over Sand
		0+10	10	1.3	0.4	Sand/Gravel
		0+20	20	1.6	0.1	Sand/Gravel
		0+30	30	1.8	0.2	Sand/Gravel
		0+40	40	1.6	0.4	Sand/Gravel
		0+48	48 EOW	0.7	0.6	Sand/Gravel
S-PC1B-3.5	11/12/2009	0+00	0 EOW	0.8	0.6	Gravel/Sand
		0+10	10	1.3	0.5	Gravel/Sand
		0+20	20	1.1	0.7	Gravel/Sand
		0+30	30	1.5	0.5	Gravel/Sand
		0+40	40 EOW	0.4	0.0	Rock/Cobble
S-PC1C-2	11/13/2009	0+00	0 EOW	0.5	0.5	Silt Over Sands
		0+10	10	1.6	0.1	Sand/Gravel
		0+20	20	1.7	0.5	Sand/Gravel
		0+30	30	1.8	0.4	Sand/Gravel
		0+40	40	1.9	0.2	Sand/Gravel
		0+50	50	1.8	0.5	Silt Over Sand/Gravel
		0+60	60	1.6	0.0	Gravel
		0+63	63 EOW	0.9	0.1	Sand Over Hard Bottom
S-PC1C-2.5	11/13/2009	0+00	0 EOW	0.5	1.2	Silt Over Sand
		0+10	10	1.7	0.6	Sand/Gravel
		0+20	20	2.4	0.6	Sand/Gravel
		0+30	30	2.0	2.3	Sand Over Sand/Gravel

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Area 10 (Cont.)						
S-PC1C-2.5 (Cont.)	11/13/2009	0+40	40	2.0	1.4	Sand Over Sand/Gravel
		0+50	50	1.1	3.0	Silty Sand Over Sand/Gravel
		0+61	61 EOW	0.4	0.7	Silt Over Sands
S-PC1C-4	11/13/2009	0+00	0 EOW	0.0	1.6	Silt Over Sands
		0+10	10	0.8	1.3	Silty Sand Over Sand/Gravel
		0+20	20	1.1	1.1	Silt Over Sand/Gravel
		0+30	30	1.0	1.2	Silt Over Sands
		0+40	40	0.7	1.5	Silt Over Sand/Gravel
		0+48	48 EOW	0.0	1.0	Silt Over Sand/Gravel
S-PC1C-4.5	11/13/2009	0+00	0 EOW	0.1	0.6	Silt Over Sand/Gravel
		0+05	5	0.4	1.0	Silt Over Sand/Gravel
		0+11	11 EOW	0.0	1.3	Silt Over Sand/Gravel
		0+28	28 EOW	1.0	0.8	Silty Sand
		0+35	35	1.4	0.6	Silty Sand
		0+40	40	0.6	1.1	Silt Over Sand
		0+45	45 EOW	0.3	1.5	Silt Over Sand
Area 14						
S-PC2-1	11/16/2009	0+00	0 EOW	0.43	1.5	Silt Over Sand
		0+10	10	0.7	1.2	Silt Over Wood
		0+20	20	1.3	1.1	Silt Over Gravel
		0+30	30	1.7	1.6	Silt Over Gravel
		0+40	40	1.2	1.6	Silt Over Gravel
		0+50	50	1.0	1.2	Silt Over Gravel
		0+62	62 EOW	0.2	0.9	Silt Over Gravel
S-PC2-1.5	11/16/2009	0+00	0 EOW	0.4	2.0	Silt Over Sand/Gravel
		0+10	10	0.6	2.4	Silt Over Sand/Gravel
		0+20	20	1.1	2.3	Sands Over Gravel
		0+30	30	1.8	1.3	Silt Over Gravel
		0+37	37 EOW	0.4	2.0	Silt Over Sand

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Area 14 (Cont.)						
S-PC2-2	11/16/2009	0+00	0 EOW	0.1	1.5	Silt Over Gravel
		0+10	10	0.9	1.3	Silt Over Gravel
		0+20	20	0.3	2.9	Silt Over Gravel
		0+32	32 EOW	0.0	3.0	Silt Over Hard Bottom
S-PC2-2.5	11/16/2009	0+00	0 EOW	0.0	2.4	Silt Over Gravel
		0+10	10	0.7	1.0	Silt Over Sand/Wood
		0+20	20	0.2	1.6	Silt Over Gravel
		0+30	30	0.1	1.9	Silt Over Gravel
		0+34	34 EOW	0.0	1.3	Silt Over Gravel
S-PC2-3	11/16/2009	0+00	0 EOW	0.0	2.5	Silt Over Gravel
		0+10	10	0.2	2.5	Silt Over Gravel
		0+20	20	0.2	2.9	Silt Over Gravel
		0+30	30	0.0	2.0	Silt Over Gravel
		0+34	34 EOW	0.0	2.0	Silt Over Sand/Gravel
S-PC2-3.5	11/16/2009	0+00	0 EOW	0.2	3.0	Silt Over Sand
		0+10	10	0.3	3.0	Silt Over Sand
		0+20	20	0.4	3.0	Silt Over Sand
		0+30	30	0.1	2.8	Silt Over Gravel
		0+34	34 EOW	0.0	2.8	Silt Over Gravel
S-PC2-4	11/16/2009	0+00	0	0.0	2.9	Silt Over Sand
		0+10	10	0.0	3.2	Silt Over Sand
		0+20	20	0.0	1.2	Silt Over Sand
		0+30	30	0.0	3.9	Silt Over Sand
		0+38	38 EOW	0.2	4.0	Silt Over Sand
		0+48	48	0.3	3.2	Silt Over Sand
		0+58	58 EOW	0.8	2.9	Silt Over Sand
		0+68	68	0.0	3.0	Silt Over Sand
		0+78	78	0.0	3.0	Silt Over Sand
		0+83	83	0.0	3.0	Silt Over Sand

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Area 14 (Cont.)						
S-PC2-4.5	11/16/2009	0+00	0	0.0	3.0	Silt Over Hard Bottom
		0+10	10	0.0	3.2	Silt Over Hard Bottom
		0+20	20	0.0	3.5	Silt Over Hard Bottom
		0+30	30	0.0	3.0	Silt Over Sand
		0+40	40	0.0	3.0	Silt Over Stiff Bottom
		0+48	48	0.0	1.5	Silt Over Sand/Gravel
S-PC2-5	11/16/2009	0+00	0	0.0	2.0	Silt Over Hard Bottom
		0+10	10	0.0	2.0	Silt Over Hard Bottom
		0+20	20	0.0	2.1	Silt Over Hard Bottom
		0+30	30	0.0	2.0	Silt Over Sand
		0+40	40	0.0	1.5	Silt Over Hard Bottom
S-PC2-5.5	11/16/2009	0+00	0	0.0	2.0	Silt Over Hard Bottom
		0+10	10	0.0	2.0	Silt Over Hard Bottom
		0+20	20	0.0	3.0	Silt Over Hard Bottom
		0+30	30	0.0	2.8	Silt Over Hard Bottom
		0+40	40	0.0	3.0	Silt Over Sand
		0+46	46	0.0	1.8	Silt Over Hard Bottom
S-PC2-6	11/17/2009	0+00	0	0.0	2.5	Silt Over Sand
		0+10	10	0.0	3.1	Silt Over Sand
		0+20	20	0.0	4.3	Silt Over Sand
		0+30	30	0.0	4.1	Silt Over Sand
		0+40	40	0.0	3.2	Silt Over Sand
		0+50	50	0.0	2.2	Silt Over Hard Bottom
		0+63	63	0.0	1.1	Silt Over Hard Bottom
S-PC2-6.5	11/17/2009	0+00	0	0.0	2.5	Silt Over Sand
		0+10	10	0.0	2.2	Silt Over Sand
		0+20	20	0.0	2.5	Silt Over Stiff Bottom
		0+30	30	0.0	3.0	Silt Over Hard Bottom
		0+42	42	0.0	2.6	Silt Over Hard Bottom

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Location	Date	Station	Distance from Right Side Looking Upstream (ft)	Water Depth (ft)	Sediment Depth (ft)	Sediment Description (Probe)
Area 14 (Cont.)						
S-PC2-7	11/17/2009	0+00	0	0.0	0.1	Silt/Roots
		0+10	10	0.0	2.2	Silt Over Hard Bottom
		0+20	20	0.0	3.0	Silt Over Hard Bottom
		0+30	30	0.0	5.0	Silt Over Stiff Bottom
		0+40	40	0.0	2.7	Silt Over Stiff Bottom
		0+50	50	0.0	1.6	Silt Over Stiff Bottom
S-PC2-7.5	11/17/2009	0+00	0	0.0	0.2	Silt Over Roots
		0+10	10	0.0	2.2	Silt Over Hard Bottom
		0+21	21 EOW	0.0	1.7	Silt Over Sand
		0+31	31	0.2	0.7	Silt Over Sand
		0+41	41 EOW	0.0	1.7	Silt Sand
		0+47	47	0.0	2.0	Silt Over Hard Bottom
Area 5						
S-IL1-7.5	11/17/2009	0+00	0 EOW	0.0	2.0	Silt Over Sand
		0+05	5	0.7	1.1	Silt Over Sand
		0+10	10	1.3	0.8	Silt Over Sand
		0+15	15	0.9	1.0	Silt Over Sand
		0+19	19 EOW	0.0	2.0	Silt Over Sand
S-IL1-7	11/17/2009	0+00	0 EOW	0.2	2.0	Silt Over Sand
		0+05	5	1.3	1.1	Silt Over Sand
		0+10	10	1.8	1.4	Silt Over Sand/Gravel
		0+15	15	1.2	2.0	Silt Over Sand/Gravel
		0+20	20	0.6	2.2	Silt Over Sand
		0+23	23 EOW	0.0	2.1	Silt Over Sand
S-IL1-6.5	11/17/2009	0+00	0 EOW	0.1	3.5	Silt Over Sand
		0+10	10	1.2	3.5	Silt Over Sand
		0+20	20	1.5	2.0	Silt Over Sand
		0+30	30	2.3	3.2	Silt Over Sand

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Location	Date	Station	Distance from Right Side Looking Upstream (ft)	Water Depth (ft)	Sediment Depth (ft)	Sediment Description (Probe)
Area 5 (Cont.)						
S-IL1-6.5 (Cont.)	11/17/2009	0+40	40	1.3	2.0	Silt Over Sand/Gravel
		0+50	50	0.7	1.9	Silt Over Sand
		0+53	53 EOW	0.3	2.4	Silt Over Sand
S-IL1-6	11/17/2009	0+00	0 EOW	0.25	0.7	Silt Over Sand
		0+10	10	1.7	1.5	Silt Over Sand
		0+20	20	1.9	2.2	Silt Over Sand
		0+30	30	1.4	3.2	Silt Over Sand
		0+40	40	0.8	3.1	Silt Over Sand
		0+44	44 EOW	0.1	3.2	Silt Over Sand
S-IL1-5.5	11/17/2009	0+00	0 EOW	0.7	0.1	Silt Over Sand/Gravel
		0+10	10	1.55	0.2	Silt Over Sand/Gravel
		0+20	20	2.2	0.1	Sand/Gravel
		0+30	30	1.9	1.0	Silt Over Sand/Gravel
		0+40	40	1.5	0.9	Silt Over Sand/Gravel
		0+52	52 EOW	0.6	1.4	Silt Over Sand
S-IL1-5	11/17/2009	0+00	0 EOW	0.1	1.1	Silt Over Sand
		0+10	10	1.4	1.0	Silt Over Sand
		0+20	20	2.4	2.7	Silt Over Sand
		0+30	30	2.2	2.0	Silt Over Sand
		0+40	40	1.7	3.8	Silt Over Sand
		0+50	50	1.0	1.8	Silt Over Sand
		0+58	58 EOW	0.1	2.8	Silt Over Sand
S-IL1-4.5	11/17/2009	0+00	0 EOW	0.1	2.2	Silt Over Sand
		0+10	10	1.6	2.1	Silt Over Sand
		0+20	20	2.2	2.8	Silt Over Sand
		0+30	30	2.2	3.0	Silt Over Sand/Gravel
		0+40	40	1.9	3.5	Silt Over Sand/Gravel
		0+53	53 EOW	0.1	3.0	Silt Over Sand

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Area 5 (Cont.)						
S-IL1-4	11/17/2009	0+00	0 EOW	0.2	0.1	Silt/Trace Roots
		0+10	10	2.6	0.3	Sand/Gravel
		0+20	20	2.4	1.6	Sand Over Sand/Gravel
		0+30	30	2.7	2.1	Sand Over Sand/Gravel
		0+40	40	2.8	3.0	Sand/Gravel
		0+50	50	2.4	2.8	Sand Over Sand/Gravel
		0+60	60	2.5	1.1	Sand/Gravel
		0+70	70	2.35	0.4	Sand/Gravel
		0+80	80	2.0	0.9	Sand/Gravel
		0+90	90	0.5	0.4	Sand
		1+00	100	0.55	1.2	Fine Sand Over Gravel
		1+10	110	1.9	0.1	Gravel
		1+20	120	2.3	0.3	Sand/Gravel
		1+30	130	1.6	1.7	Sand Over Sand/Gravel
		1+40	140	1.5	1.3	Silt Over Sand/Gravel
		1+50	150	1.1	2.9	Silt Over Sand/Gravel
		1+60	160	0.9	3.3	Silt Over Sand Over Sand/Gravel
		1+69	169 EOW	1.2	1.0	Sand Over Sand/Gravel
S-IL1-3.5	11/17/2009	0+00	0 EOW	0.1	1.0	Sand/Gravel
		0+10	10	1.9	0.6	Sand/Gravel
		0+20	20	2.7	0.3	Sand/Gravel
		0+30	30	3.6	1.4	Sand/Gravel
		0+40	40	4.3	0.2	Sand/Gravel
		0+50	50	3.25	1.0	Silt Over Sand/Gravel
		0+60	60	2.35	1.0	Silt Over Sand/Gravel
		0+66	66 EOW	1.2	2.0	Silt Over Sand/Roots
S-IL1-3	11/17/2009	0+00	0 EOW	0.7	1.1	Silt Over Sand/Gravel
		0+10	10	1.6	0.6	Sand/Gravel
		0+20	20	1.7	0.1	Gravel
		0+30	30	2.1	1.2	Sand/Gravel

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Area 5 (Cont.)						
S-IL1-3 (Cont.)	11/17/2009	0+40	40	2.2	0.2	Sand/Gravel
		0+50	50	1.9	0.2	Sand/Gravel
		0+60	60	1.25	0.1	Sand/Gravel
		0+65	65 EOW	0.7	0.4	Sand/Gravel/Wood
		1+00	100 EOW	0.7	0.5	Sand Over Sand/Gravel
		1+10	110	1.4	0.4	Sand/Gravel
		1+20	120	1.3	0.3	Sand/Gravel
		1+30	130	1.1	1.1	Sand Over Sand/Gravel
		1+40	140	1.0	1.0	Sand Over Sand/Gravel
		1+44	144 EOW	0.9	1.1	Silt Over Sand
S-IL1-2.5	11/17/2009	0+00	0 EOW	0.1	0.0	Roots
		0+10	10	1.4	0.1	Gravel
		0+20	20	1.3	0.2	Sand/Gravel
		0+30	30	1.3	0.4	Sand/Gravel
		0+40	40	1.6	0.1	Sand/Gravel
		0+50	50	1.6	0.2	Sand/Gravel
		0+60	60	1.65	0.2	Sand/Gravel
		0+70	70	1.7	0.3	Sand/Gravel
		0+80	80	1.7	0.2	Sand/Gravel
		0+90	90	2.4	0.5	Sand/Gravel
		1+00	100	1.35	0.8	Sand Over Sand/Gravel
		1+10	110	1.1	1.1	Silt/Leaves Over Sand Hard Bottom
		1+20	120 EOW	0.3	2.0	Silt Over Sand/Gravel
S-IL1-2	11/17/2009	0+00	0 EOW	1.4	0.8	Silt Over Sand/Gravel
		0+10	10	1.65	0.2	Sand/Gravel
		0+20	20	1.7	0.1	Sand/Gravel
		0+30	30	1.7	0.1	Sand/Gravel
		0+40	40	1.75	0.3	Sand/Gravel
		0+50	50	1.8	0.5	Sand/Gravel
		0+60	60	2.2	0.7	Sand/Gravel

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Area 5 (Cont.)						
S-IL1-2 (Cont.)	11/17/2009	0+70	70	2.3	0.3	Sand/Gravel
		0+80	80	1.7	0.5	Silt Over Sand/Gravel
		0+85	85 EOW	0.7	0.7	Silt Over Sand/Gravel
S-IL1-1.5	11/17/2009	0+00	0 EOW	0.5	1.4	Silt Over Sand
		0+10	10	1.7	0.2	Sand/Gravel
		0+20	20	1.6	0.4	Sand/Gravel
		0+30	30	1.6	0.2	Sand/Gravel
		0+40	40	2.1	0.3	Sand/Gravel
		0+50	50	2.6	0.2	Sand/Gravel
		0+60	60	3.2	0.1	Sand/Gravel
		0+73	73 EOW	1.8	0.2	Sand/Hard Bottom
S-IL1-1	11/17/2009	0+00	0 EOW	0.0	1.8	Silt Over Sand
		0+10	10	1.55	0.1	Sand/Gravel
		0+20	20	1.65	0.1	Sand/Gravel
		0+30	30	1.85	0.1	Sand/Gravel
		0+40	40	1.7	0.2	Sand/Gravel
		0+50	50	2.0	0.3	Sand/Gravel
		0+60	60	1.8	0.1	Sand/Gravel
		0+70	70	1.8	0.2	Sand/Gravel
		0+80	80	2.45	0.3	Sand/Gravel
		0+89	89 EOW	1.7	0.3	Sand Over Hard Bottom

Note:

EOW - Edge of water.

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Table F — Focused Step-Out Cores — Samples for which Data was Received in November 2009

Location	Sample ID	Depth Interval (in)	SDG	Date Received
FF-35-60'S	K56377	0-2	KAL479	11/9/2009
	K56378	2-6	KAL479	11/9/2009
	K56379	6-12	KAL479	11/9/2009
	K56380	12-15	KAL479	11/9/2009
FF-35-60'N	K56381	0-2	KAL479	11/9/2009
	K56382	2-6	KAL479	11/9/2009
	K56383	6-12	KAL479	11/9/2009
	K56384	12-15	KAL479	11/9/2009
	K56385	15-19	KAL479	11/9/2009
FF-35-40'N	K56386	0-2	KAL479	11/9/2009
	K56387	2-6	KAL479	11/9/2009
	K56388	6-10	KAL479	11/9/2009
	K56389	10-15	KAL479	11/9/2009
	K56390	15-19	KAL479	11/9/2009
FF-35-40'S	K56391	0-2	KAL479	11/9/2009
	K56392	2-6	KAL479	11/9/2009
	K56393	6-12	KAL479	11/9/2009
	K56394 [K56395]	12-19	KAL479 [KAL479]	11/9/2009
	K56396 ¹	19-29	KAL479	11/9/2009

Notes:

Cores were collected in July 2009, and released for analysis in September 2009.

¹MS/MSD performed on this sample.

Duplicate samples are in brackets.

Samples analyzed for PCB, TOC, and grain size analysis by TestAmerica Laboratories, Inc.

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Table G — Lake Allegan (Area 6) — Samples for which Data Was Received in November 2009

Date Collected	Location	Depth Interval (cm)	Sample ID	SDG	Date Received
5/13/2009	ALG-10	70-75	K16872	Pb0189	11/13/2009
		75-80	K16873	Pb0189	11/13/2009
		80-85	K16874	Pb0189	11/13/2009
		85-90	K16875	Pb0189	11/13/2009
		90-95	K16876	Pb0189	11/13/2009
		95-100	K16877	Pb0189	11/13/2009
	SPI-40	0-1	K16818	Pb0188	11/12/2009
		1-2	K16819	Pb0188	11/12/2009
		2-3	K16820	Pb0188	11/12/2009
		3-4	K16821	Pb0188	11/12/2009
		4-5	K16822	Pb0188	11/12/2009
		5-6	K16823	Pb0188	11/12/2009
		6-7	K16824	Pb0188	11/12/2009
		7-8	K16825	Pb0188	11/12/2009
		8-9	K16826	Pb0188	11/12/2009
		9-10	K16827	Pb0188	11/12/2009
		10-12	K16828	Pb0188	11/12/2009
		12-14	K16829	Pb0188	11/12/2009
		14-16	K16830	Pb0188	11/12/2009
		16-18	K16831	Pb0188	11/12/2009
		18-20	K16832	Pb0188	11/12/2009
		20-25	K16833	Pb0188	11/12/2009
		25-30	K16834	Pb0188	11/12/2009
		30-35	K16835	Pb0188	11/12/2009
		35-40	K16836	Pb0188	11/12/2009
		40-45	K16837	Pb0188	11/12/2009
		45-50	K16838	Pb0189	11/13/2009
		50-55	K16839	Pb0189	11/13/2009
		55-60	K16840	Pb0189	11/13/2009
		60-65	K16841	Pb0189	11/13/2009
		65-70	K16842	Pb0189	11/13/2009

Note:

Samples were analyzed for Pb-210 and Cs-137 by MassSpec Services.

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Table H — Lake Allegan (Area 6) — Surface Sediment Samples — Status of Analytical Data

Date Collected	Location	Sample ID	SDG	Date Received
10/27/2009	SPI-1	K56399	KAL483	11/30/2009
	SPI-2	K56400	KAL483	11/30/2009
	SPI-3	K56401	KAL483	11/30/2009
	SPI-4	K56402	KAL483	11/30/2009
	SPI-5	K56403	KAL483	11/30/2009
	SPI-6	K56404	KAL483	11/30/2009
	SPI-7	K56405	KAL483	11/30/2009
	SPI-8	K56406	KAL483	11/30/2009
	SPI-9	K56407	KAL483	11/30/2009
	SPI-10	K56408	KAL483	11/30/2009
	SPI-11	K56409	KAL483	11/30/2009
	SPI-12	K56410	KAL483	11/30/2009
	SPI-13	K56411 [K56412]	KAL483 [KAL483]	11/30/2009
	SPI-14	K56413	KAL483	11/30/2009
	SPI-15	K56414	KAL483	11/30/2009
	SPI-16	K56415	KAL483	11/30/2009
	SPI-17	K56416	KAL483	11/30/2009
	SPI-18	K56417	KAL483	11/30/2009
	SPI-19	K56418	KAL483	11/30/2009
	SPI-20	K56419	NR	NR
10/28/2009	SPI-21	K56420	NR	NR
	SPI-22	K56421	NR	NR
	SPI-23	K56422	NR	NR
	SPI-24	K56423	NR	NR
	SPI-25	K56424	NR	NR
	SPI-26	K56425	NR	NR
	SPI-27	K56426	NR	NR
	SPI-28	K56427	NR	NR
	SPI-29	K56428	NR	NR
	SPI-30	K56429	NR	NR
	SPI-31	K56430	NR	NR
	SPI-32	K56431	NR	NR
	SPI-33	K56432 [K56433]	NR	NR
	SPI-34	K56434	NR	NR
	SPI-35	K56435 ¹	NR	NR
	SPI-36	K56436	NR	NR
	SPI-37	K56437	NR	NR
	SPI-38	K56438	NR	NR
	SPI-39	K56439	NR	NR
	SPI-40	K56440	NR	NR

Notes:

All samples collected using 3" Lexan, and sent to TestAmerica Laboratories for PCB, TOC, and grain size analysis.

¹MS/MSD performed on this sample.

Duplicate samples are in brackets.

NR - Data not received by November 30, 2009.

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Table I — Hot Spot Assessment — Sediment Samples — Status of Analytical Data

Location	Sample ID	Depth Interval (in)	SDG	Date Received
KRT4-C	K556441	0 - 2	NR	NR
	K556442	2 - 6	NR	NR
	K556443	6 - 12	NR	NR
	K556444	12 - 18	NR	NR
	K556445	18 - 24	NR	NR
	K556446	24 - 28	NR	NR
	K556447	28 - 32	NR	NR
	K556448	32 - 36	NR	NR
	K556449	36 - 46	NR	NR
KRT4-E	K556450	0 - 2	NR	NR
	K556451	2 - 4	NR	NR
	K556452	4 - 6	NR	NR
	K556453	6 - 12	NR	NR
	K556454 [K556458]	12 - 24	NR	NR
	K556455 ¹	24 - 36	NR	NR
	K556456	36 - 41	NR	NR
	K556457	41 - 46	NR	NR
KRT4-F	K556459	0 - 2	NR	NR
	K556460	2 - 6	NR	NR
	K556461	6 - 12	NR	NR
	K556462 ¹ [K556465]	12 - 24	NR	NR
	K556463	24 - 27	NR	NR
	K556464	27 - 30	NR	NR
KRT4-D	K556466	0 - 2	NR	NR
	K556467	2 - 6	NR	NR
	K556468	6 - 12	NR	NR
	K556469	12 - 15	NR	NR
	K556470	15 - 21	NR	NR

Notes:

¹MS/MSD performed on this sample.

Duplicate samples are in brackets.

Samples sent to TestAmerica Laboratories, Inc. for PCB, TOC, and grain size analysis on October 30.

NR - Data not received by November 30, 2009.

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Table J — PCB Results for Sediment Samples Collected in Lake Allegan — Data Received in September 2009

Sample Name:		K16878	K16879	K16880 [K16881]	K16882	K16883	K16884	K16885	K16886	K16887	K16888	K16889	K16890
Sample Depth(cm):		0 - 1	1 - 2	2 - 3	3 - 4	4 - 5	5 - 6	6 - 7	7 - 8	8 - 9	9 - 10	10 - 12	12 - 14
Date Collected:		05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09
Location ID:	Units	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7
PCB Aroclors													
Aroclor-1016	mg/kg	0.31 U	0.29 U	0.25 U [0.22 U]	0.20 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U
Aroclor-1221	mg/kg	0.31 U	0.29 U	0.25 U [0.22 U]	0.20 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U
Aroclor-1232	mg/kg	0.31 U	0.29 U	0.25 U [0.22 U]	0.20 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U
Aroclor-1242	mg/kg	1.5	1.5	1.2 [1.0]	1.0	1.2	1.3	1.5	1.5	1.6	1.7	1.2	1.3
Aroclor-1248	mg/kg	0.31 U	0.29 U	0.25 U [0.22 U]	0.20 U	0.19 U	0.19 U	0.18 U	0.18 U	0.19 U	0.18 U	0.18 U	0.18 U
Aroclor-1254	mg/kg	0.35	0.34	0.25 [0.20 J]	0.18 J	0.23	0.23	0.26	0.27	0.25	0.29	0.24	0.22
Aroclor-1260	mg/kg	0.31 U	0.29 U	0.25 U [0.22 U]	0.20 U	0.19 U	0.19 U	0.18 U	0.091 J	0.097 J	0.10 J	0.18 U	0.18 U
Total PCBs	mg/kg	1.9	1.8	1.5 [1.2 J]	1.2 J	1.4	1.5	1.8	1.9 J	2.0 J	2.1 J	1.4	1.5
Miscellaneous													
Percent Solids	%	16.1	17	19.8 [21.6]	24.3	25.5	25.5	26.7	27.5	27.3	28.4	27.1	27.6

Sample Name:		K16891 [K16892]	K16893	K16894	K16896	K16897	K16898
Sample Depth(cm):		14 - 16	16 - 18	18 - 20	25 - 30	30 - 35	35 - 40
Date Collected:		05/14/09	05/14/09	05/14/09	05/14/09	05/14/09	05/14/09
Location ID:	Units	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7	ALG-7
PCB Aroclors							
Aroclor-1016	mg/kg	0.18 U [0.18 U]	0.18 U	0.32 U	1.7 U	3.3 U	4.6 U
Aroclor-1221	mg/kg	0.18 U [0.18 U]	0.18 U	0.32 U	1.7 U	3.3 U	4.6 U
Aroclor-1232	mg/kg	0.18 U [0.18 U]	0.18 U	0.32 U	1.7 U	3.3 U	4.6 U
Aroclor-1242	mg/kg	1.6 [1.6]	2.5	3.1	5.6	23	63
Aroclor-1248	mg/kg	0.18 U [0.18 U]	0.18 U	0.32 U	2.5	3.3 U	4.6 U
Aroclor-1254	mg/kg	0.28 [0.30]	0.50	0.60	1.5 J	2.2 J	3.1 J
Aroclor-1260	mg/kg	0.097 J [0.097 J]	0.18 U	0.32 U	1.7 U	3.3 U	4.6 U
Total PCBs	mg/kg	2.0 J [2.0 J]	3.0	3.7	9.6 J	25 J	66 J
Miscellaneous							
Percent Solids	%	27.8 [27.8]	28.3	30.9	29.1	29.6	27

Notes:

J - The compound was positively identified; however, the associated numerical value is an estimated concentration only.

U - The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Samples analyzed by TestAmerica Laboratories, Inc.

Duplicate results are in brackets.

ARCADIS

Attachment A

Validation Report

Kalamazoo River Superfund Site Lake Allegan

Data Review

LAKE ALLEGAN, MICHIGAN

PCB Analysis

SDG#KAL474

Analyses Performed By:
TestAmerica Laboratories
Burlington, Vermont

Report: # 10833
Review Level: Tier III
Project: B0064521.0000.00500

SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #KAL474 for samples collected in association with the Lake Allegan site. The review was conducted as a Tier III evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	SVOC	PCB	MET	MISC
K16878	804502	SEDIMENT	5/14/2009				X		
K16879	804503	SEDIMENT	5/14/2009				X		
K16880	804504	SEDIMENT	5/14/2009				X		
K16881	804505	SEDIMENT	5/14/2009	K16880			X		
K16882	804506	SEDIMENT	5/14/2009				X		
K16883	804507	SEDIMENT	5/14/2009				X		
K16884	804508	SEDIMENT	5/14/2009				X		
K16885	804509	SEDIMENT	5/14/2009				X		
K16886	804510	SEDIMENT	5/14/2009				X		
K16887	804511	SEDIMENT	5/14/2009				X		
K16888	804512	SEDIMENT	5/14/2009				X		
K16889	804513	SEDIMENT	5/14/2009				X		
K16890	804514	SEDIMENT	5/14/2009				X		
K16891	804515	SEDIMENT	5/14/2009				X		
K16892	804516	SEDIMENT	5/14/2009				X		
K16893	804517	SEDIMENT	5/14/2009				X		
K16894	804518	SEDIMENT	5/14/2009				X		
K16896	804519	SEDIMENT	5/14/2009				X		
K16897	804520	SEDIMENT	5/14/2009				X		
K16898	804521	SEDIMENT	5/14/2009				X		

Note:

1. Matrix spike/matrix spike duplicate was performed on sample location K16889.

ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to (United States Environmental Protection Agency) USEPA Method 8082. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999 and USEPA Region II (SOP HW-45, Revision 1).

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
 - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
 - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
 - E The compound was quantitated above the calibration range.
 - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
 - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
 - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
 - JN The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification. The associated numerical value is an estimated concentration only.
 - UB Compound considered non-detect at the listed value due to associated blank contamination.
 - N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
 - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

The data presented in this package has been derived using a procedure developed by TestAmerica as an attempt to improve the analytical process of calibration, identification and quantitation of PCBs as Aroclors. Key components of this procedure include:

Calibration

The response function of the electron capture detector is inherently non-linear. While significant linearization is achieved for this detector by electronic means, some non-linearity remains. Power function linearization is used to straighten the curve and allow the use of response factors for calibration purposes.

During the initial calibration, a response factor is calculated for each peak in the individual Aroclors. A weighted response factor calculation has been used to adjust for non-linearity at the low end of the calibration curve.

Identification

Peak retention times are relative. Retention times are in set windows relative to the time markers DCB and TCX. Time markers adjust for minor variations in column flow or instrument condition and allow the use of very tight windows which minimizes the number of false positive and false negative peak identifications.

The determination of which Aroclor or mixture of Aroclors will produce a chromatogram most similar to that of the residue is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors. This is similar to the procedure presented by L.E. Silvon, P.M. Schumacher and A. Alford-Stevens for the determination of Aroclor composition from GC/MS level of chlorination results.

Identification/quantitation of Aroclors in samples is based on the combined response of two columns, typically RTX-5 and RTX-35. The pooling of response combines the unique qualities of both columns to derive a more defined Aroclor pattern which is less likely to be affected by interferences. Identification/quantitation data for the individual columns is provided in the package and can be used as a check on the combined column results.

POLYCHLORINATED BIPHENYLS (PCBs) ANALYSES

1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8082	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cooled @ 4 °C
	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cooled @ 4 °C

Samples in this SDG were frozen upon receipt at the laboratory until time of analysis. Therefore, samples analyzed beyond the method prescribed holding time were not qualified.

2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

3. System Performance

System performance and column resolution were acceptable.

4. Calibration

Satisfactory instrument calibration is established to insure that the instrument is capable of producing acceptable quantitative data. An initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of an experimental sequence. The continuing calibration verifies that the instrument daily performance is satisfactory.

4.1 Initial Calibration

A maximum RSD of 20% is allowed or a correlation coefficient greater than 0.99. Multiple-point calibrations were performed for all Aroclors.

4.2 Continuing Calibration

All target compounds associated with the continuing calibration standard must exhibit a percent difference (%D) less than the control limit (15%).

All calibration criteria were within the control limits.

5. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. PCB analysis requires the surrogate compounds must exhibited recoveries within the method established acceptance limits.

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Surrogate	Column 1 Recovery	Column 2 Recovery
K16897	Tetrachloro-m-xylene	AC ¹	AC ¹
K16898	Decachlorobiphenyl	AC ¹	AC ¹

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results associated with the deviant fraction are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> the upper control limit (UL)	Non-detect	No Action
	Detect	J
< the lower control limit (LL) but > 10%	Non-detect	J
	Detect	J
< 10%	Non-detect	R
	Detect	J
One surrogate exhibiting recovery outside the control limits but > 10%	Non-detect	No Action
	Detect	

Note:

1. The reported analyses for sample locations K16897 and K16898 were diluted in order to report detected PCBs within the calibration range. The dilution of these samples caused the surrogate compounds to be diluted below the calibration range. However, the laboratory performed preliminary screen analyses on sample locations with surrogate compounds within the calibration range. The screen analyses exhibited surrogate recovery within control limits.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the method established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the method established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

The MS/MSD exhibited acceptable recoveries and RPD between the MS/MSD recoveries.

7. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the method established acceptance limits.

All compounds associated with the LCS analysis exhibited recoveries within the control limits.

8. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 50% for water matrices and 100% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
K16880/ K16881	Aroclor 1242	1200	1000	AC
	Aroclor 1254	250 J	200 J	AC
	Total Aroclors	1450	1200	AC

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

9. Compound Identification

The determination of Aroclor presence is made by expressing the unknown sample chromatogram as a linear combination of the Aroclors. The most similar Aroclor or mixture of Aroclors is determined by using a least squares minimization of the difference between the unknown chromatogram and the linear combination of Aroclors.

All identified compounds met the specified criteria.

10. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

DATA VALIDATION CHECKLIST FOR PCBs

PCBs; SW846 8082	Reported		Performance Acceptable		Not Required	
	No	Yes	No	Yes		
GAS CHROMATOGRAPHY (GC/FID)						
Tier II Validation						
Holding times		X		X		
Reporting limits (units)		X		X		
Blanks						
A. Method blanks		X		X		
B. Field blanks					X	
Laboratory Control Sample (LCS) %R		X		X		
Laboratory Control Sample Duplicate(LCSD) %R					X	
LCS/LCSD Precision (RPD)					X	
Matrix Spike (MS) %R		X		X		
Matrix Spike Duplicate(MSD) %R		X		X		
MS/MSD Precision (RPD)		X		X		
Field Duplicate (RPD)		X		X		
Surrogate Spike Recoveries		X		X		
Dilution Factor		X		X		
Moisture Content		X		X		
Tier III Validation						
Initial calibration %RSDs		X		X		
Continuing calibration %Ds		X		X		
System performance and column resolution		X		X		
Compound identification and quantitation						
A. Quantitation Reports		X		X		
B. RT of sample compounds within the established RT windows		X		X		
C. Pattern identification		X		X		
D. Transcription/calculation errors present				X		
E. Reporting limits adjusted to reflect sample dilutions		X		X		

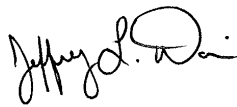
%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

VALIDATION PERFORMED

BY:

Jeffrey L. Davin

SIGNATURE:



DATE: September 29, 2009

PEER REVIEW: Dennis Capria

DATE: October 16, 2009

**CHAIN OF CUSTODY/
CORRECTED SAMPLE ANALYSIS DATA SHEETS**

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16878

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804502

Phase Weight: 10.07 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 16

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	310	U
11104-28-2	Aroclor-1221	310	U
11141-16-5	Aroclor-1232	310	U
53469-21-9	Aroclor-1242	1500	
12672-29-6	Aroclor-1248	310	U
11097-69-1	Aroclor-1254	350	
11096-82-5	Aroclor-1260	310	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16879

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804503

Phase Weight: 10.06 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 17

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	290	U
11104-28-2	Aroclor-1221	290	U
11141-16-5	Aroclor-1232	290	U
53469-21-9	Aroclor-1242	1500	
12672-29-6	Aroclor-1248	290	U
11097-69-1	Aroclor-1254	340	
11096-82-5	Aroclor-1260	290	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16880

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804504

Phase Weight: 10.07 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 20

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	250	U
11104-28-2	Aroclor-1221	250	U
11141-16-5	Aroclor-1232	250	U
53469-21-9	Aroclor-1242	1200	
12672-29-6	Aroclor-1248	250	U
11097-69-1	Aroclor-1254	250	
11096-82-5	Aroclor-1260	250	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16881

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804505

Phase Weight: 10.20 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 22

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	220	U
11104-28-2	Aroclor-1221	220	U
11141-16-5	Aroclor-1232	220	U
53469-21-9	Aroclor-1242	1000	
12672-29-6	Aroclor-1248	220	U
11097-69-1	Aroclor-1254	200	J
11096-82-5	Aroclor-1260	220	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16882

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804506

Phase Weight: 10.17 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 24

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	200	U
11104-28-2	Aroclor-1221	200	U
11141-16-5	Aroclor-1232	200	U
53469-21-9	Aroclor-1242	1000	
12672-29-6	Aroclor-1248	200	U
11097-69-1	Aroclor-1254	180	J
11096-82-5	Aroclor-1260	200	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.:

K16883

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804507

Phase Weight: 10.00 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 26

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	1200	
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	230	
11096-82-5	Aroclor-1260	190	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16884

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804508

Phase Weight: 10.02 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 26

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	1300	
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	230	
11096-82-5	Aroclor-1260	190	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16885

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804509

Phase Weight: 10.06 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 27

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1500	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	260	
11096-82-5	Aroclor-1260	180	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16886

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804510

Phase Weight: 10.07 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1500	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	270	
11096-82-5	Aroclor-1260	91	J

FORM 1
AROCLOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16887

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804511

Phase Weight: 10.01 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 27

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	1600	
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	250	
11096-82-5	Aroclor-1260	97	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16888

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804512

Phase Weight: 10.07 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1700	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	290	
11096-82-5	Aroclor-1260	100	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16889

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804513

Phase Weight: 10.19 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 27

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1200	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	240	
11096-82-5	Aroclor-1260	180	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16890

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804514

Phase Weight: 10.01 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1300	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	220	
11096-82-5	Aroclor-1260	180	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16891

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804515

Phase Weight: 10.06 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1600	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	280	
11096-82-5	Aroclor-1260	97	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16892

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804516

Phase Weight: 10.01 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	1600	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	300	
11096-82-5	Aroclor-1260	97	J

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16893

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804517

Phase Weight: 10.04 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 1.0

Date Analyzed: 09/15/09

% Solids: 28

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	2500	
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	500	
11096-82-5	Aroclor-1260	180	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16894

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804518

Phase Weight: 10.13 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 2.0

Date Analyzed: 09/15/09

% Solids: 31

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	320	U
11104-28-2	Aroclor-1221	320	U
11141-16-5	Aroclor-1232	320	U
53469-21-9	Aroclor-1242	3100	
12672-29-6	Aroclor-1248	320	U
11097-69-1	Aroclor-1254	600	
11096-82-5	Aroclor-1260	320	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16896

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804519

Phase Weight: 10.06 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 10.0

Date Analyzed: 09/15/09

% Solids: 29

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	1700	U
11104-28-2	Aroclor-1221	1700	U
11141-16-5	Aroclor-1232	1700	U
53469-21-9	Aroclor-1242	5600	
12672-29-6	Aroclor-1248	2500	
11097-69-1	Aroclor-1254	1500	J
11096-82-5	Aroclor-1260	1700	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16897

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804520

Phase Weight: 10.03 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 20.0

Date Analyzed: 09/15/09

% Solids: 30

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	3300	U
11104-28-2	Aroclor-1221	3300	U
11141-16-5	Aroclor-1232	3300	U
53469-21-9	Aroclor-1242	23000	
12672-29-6	Aroclor-1248	3300	U
11097-69-1	Aroclor-1254	2200	J
11096-82-5	Aroclor-1260	3300	U

FORM 1
AROCOR ANALYSIS DATA SHEET

EPA SAMPLE NO.

K16898

Lab Name: TestAmerica Burlington

Lab Code: STLV

Contract: 27000

Case: KZOO

SDG: KAL474

Phase Type: SOIL

Lab Sample ID: 804521

Phase Weight: 10.05 (g)

Date Received: 05/16/09

Injection Volume: 1.0 (uL)

Date Extracted: 08/25/09

Dilution Factor: 25.0

Date Analyzed: 09/15/09

% Solids: 27

Sulfur Clean-up: N (Y/N)

CAS NO.	COMPOUND	CONCENTRATION ug/Kg	QUALIFIER
12674-11-2	Aroclor-1016	4600	U
11104-28-2	Aroclor-1221	4600	U
11141-16-5	Aroclor-1232	4600	U
53469-21-9	Aroclor-1242	63000	
12672-29-6	Aroclor-1248	4600	U
11097-69-1	Aroclor-1254	3100	J
11096-82-5	Aroclor-1260	4600	U

Contact & Company Name: Mike Scoville Address: City: State: Zip:		Telephone: 315-671-9387 Fax: E-mail Address:	
Send Results to: Project Name/Location (City, State): Lake Allegan, MI Sampler's Printed Name:		Project #: 04521-00500 Sampler's Signature:	
Sample ID	Collection Date	Type (✓) Comp Grab	Matrix
K16923 MS/MSD	5/14/09 1010		SE
K16924			
K16925			
K16926			
K16927			
K16928			
K16929			
K16930			
K16931			
K16932			
K16878	5/14/09 1045		
K16879			
K16880			
K16881			

Special Instructions/Comments:

☐ Special QA/QC Instructions (✓):

Preservation Key:
 A. H₂SO₄
 B. HCl
 C. HNO₃
 D. NaOH
 E. None
 F. Other:
 G. Other:
 H. Other:
 I. Other:

Container Information Key:
 1. 40 ml Vial
 2. 1 L Amber
 3. 250 ml Plastic
 4. 500 ml Plastic
 5. Encore
 6. 2 oz. Glass
 7. 4 oz. Glass
 8. 8 oz. Glass
 9. Other:
 10. Other:

Matrix Key:
 SE - Sediment
 SW - Sludge
 A - Air
 SO - Soil
 W - Water
 T - Tissue
 NL - NAPL/Oil
 SW - Sample Wipe
 Other:

REMARKS
 HOLD ALL SAMPLES

Relinquished By: Printed Name: Signature: Firm: Date/Time:

Received By: Printed Name: Signature: Firm: Date/Time:

Laboratory Information and Receipt
 Lab Name: Test America
 Cooler Custody Seal (✓) Intact ☒ Not Intact ☐
 Sample Receipt: No Custody Seals
 Condition/Cooler Temp: 5.4, 3.6, 3.5, 4.1
 Shipping Tracking #:

Distribution: WHITE - Laboratory returns with results
 YELLOW - Lab copy
 PINK - Retained by BBL

Contact & Company Name:		Telephone:		315-671-9387		
Address:		Fax:				
City:		State:		Zip:		
Project Name/Location (City, State):		Project #:				
Sampler's Printed Name:		Sampler's Signature:				
Sample ID	Collection Date	Time	Type (✓)	Comp	Grab	Matrix
K16882	5/14/09	1045				SE
K16883						
K16884						
K16885						
K16886						
K16887						
K16888						
K16889						
K16889 MS/MSD						
K16889 MS/MSD						
K16890						
K16891						
K16892						
K16893						

P.C. No Solid

HOLD ALL SAMPLES

REMARKS

Keys
Preservation Key:
 A. H₂SO₄
 B. HCl
 C. HNO₃
 D. NaOH
 E. None
 F. Other: _____
 G. Other: _____
 H. Other: _____
Container Information Key:
 1. 40 ml Vial
 2. 1 L Amber
 3. 250 ml Plastic
 4. 500 ml Plastic
 5. EnCore
 6. 2 oz. Glass
 7. 4 oz. Glass
 8. 8 oz. Glass
 9. Other: _____
 10. Other: _____
Matrix Key:
 SE - Sediment
 SO - Soil
 W - Water
 SL - Sludge
 A - Air
 NL - NAPL/Oil
 SW - Sample Wipe
 Other: _____

PARAMETER ANALYSIS & METHOD

☐ Special QA/QC Instructions(✓):

Laboratory Information and Receipt		Relinquished By		Received By		Relinquished By		Laboratory Received By	
Lab Name:	TegAmerica	Printed Name:	Jessica Beurts	Printed Name:		Printed Name:	Vu Pham	Printed Name:	
<input type="checkbox"/> Cooler packed with ice (✓) <input checked="" type="checkbox"/> Cooler Custody Seal (✓) 2100812669 <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact No Custody seals		Signature:	[Signature]	Signature:		Signature:	[Signature]	Signature:	
Sample Receipt:		Firm:	ARCADIS	Firm/Courier:		Firm/Courier:		Firm:	TA Burlington
Condition/Cooler Temp: 5.3, 3.6, 5.6, 4.0, 3.5, 4.1		Date/Time:	5/15/09 1630	Date/Time:		Date/Time:		Date/Time:	5/16/09 - 0940

Distribution: WHITE - Laboratory returns with results
 YELLOW - Lab copy
 PINK - Retained by BBL



ARCADIS
Infrastructure, environment, facilities

ID#: 13935

CHAIN OF CUSTODY & LABORATORY ANALYSIS REQUEST FORM

Lab Work Order #

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